



# APPENDIX D

## Draft Utility Coordination Guidebook

Prepared by  
**Center for Sustainable Energy**

As part of the  
**Central Sierra Zero Emission Vehicle Readiness Plan**

**FEBRUARY 15, 2019**

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# UTILITY PROVIDERS



Located in Alpine County, Kirkwood Meadows Public Utility District (KMPUD) serves the Central Sierra Region of Kirkwood, CA with some operations in Amador County. Founded in 1985, KMPUD is a public municipal corporation established under the California Public Utilities Code (CPUC). At this time KMPUD does not operate any specific electric vehicle programs.



Liberty Utilities serves the Alpine County region of Markleeville, CA. The utility offers an Electric Vehicle Program for residential and small commercial customers to charge during off-peak periods (time-of-use (TOU) rates). If approved by the CPUC, Liberty Utilities will also offer incentives including \$1,500 for residential customers and \$2,500 for small commercial customers.



Pacific Gas & Electric (PG&E) serves the Central Sierra Region of Alpine, Amador, Calaveras, and Tuolumne counties. PG&E operates several electric vehicle programs including PG&E's FleetReady program, geared towards supporting medium and heavy-duty fleets. PG&E also offers two rate plans for EV charging: EV-A and EV-B. EV-A adds the electric vehicle charging station (EVCS) to your current service while EV-B operates under a separate service.



Tuolumne Public Power Agency (TPPA), established in 1983, serves Tuolumne County and the local government agencies including, but not limited to, The County of Tuolumne, The City of Sonora, all public schools K-12, Columbia Community College, and special districts. TPPA offers low cost electrical energy to member agencies and can facilitate EVCS utility coordination.

## Calaveras Public Power Agency

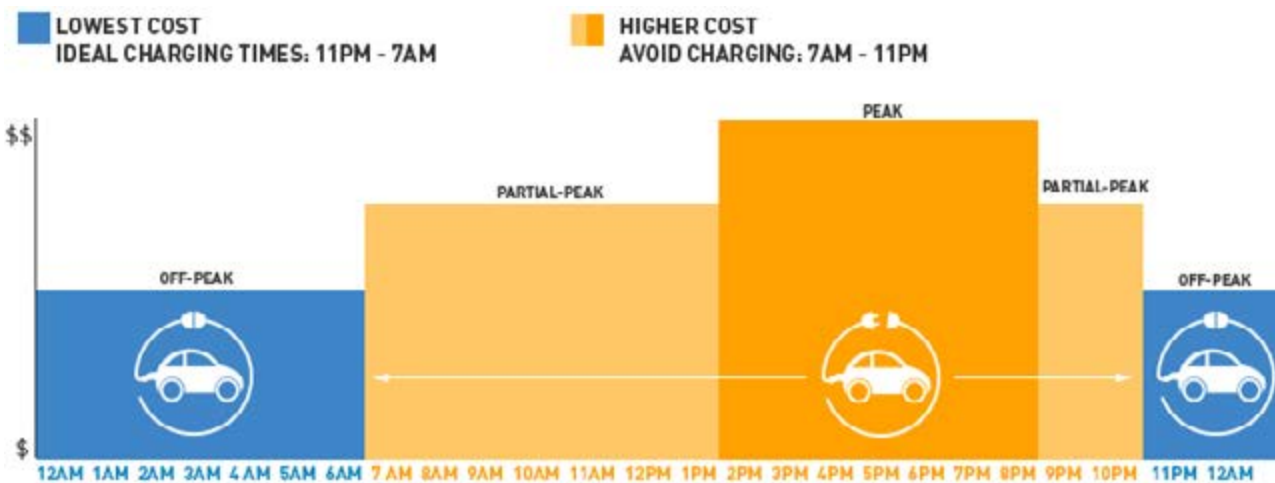
Calaveras Public Power Agency (CPPA) serves Calaveras County and the local government agencies including: water and wastewater treatment plants, fire stations, schools, hospitals, government centers, the county jail, and other local government agencies. CPPA offers low cost electrical energy to member agencies and can facilitate EVCS utility coordination.

# EVSE & UTILITIES

As the number of plug-in electric vehicles (PEVs) on the road increases, so does the demand placed on electric utilities to supply them with the power they need. Vehicle charging can add substantial electrical load and changes how, when, and why electricity is used. Potential site hosts should coordinate with their utility on a number of different issues. The following include

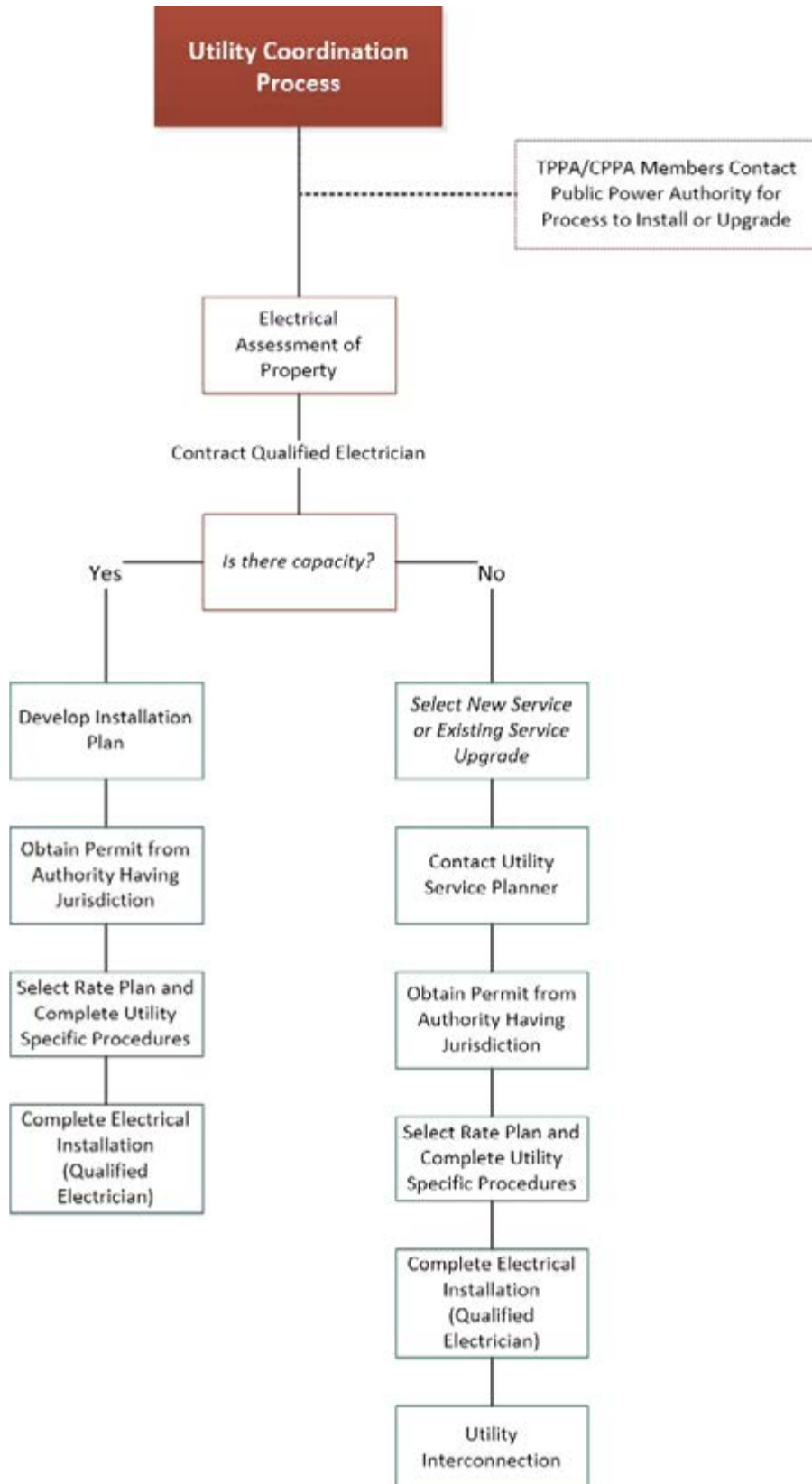
- **Participate in utility infrastructure program:** Some utilities offer programs that include funding installations for charging infrastructure or rebates for charging stations. Contact your utility provider to see if you qualify for any programs.
- **Upgrade your service:** You may need to expand your electrical service to support EV charging. Utility service planners will help determine the requirements for upgrading your service or establishing new service to support EV charging.
- **Change your rate plan:** The traditional tiered rate structure is helpful in promoting energy conservation, but it offers no incentive for you to charge during off-peak hours. Check with your utility for rate plans that fit best with your EV charging schedule. For example, Liberty Utilities and PG&E offer time-of-use plans for their EV charging customers to charge during off-hours at a lower cost (Figure 1).
- **Explore smart grid opportunities:** Utilities are piloting smart grid programs that may offer incentives for managing charging to reduce grid impacts.

Figure 1: PG&E Example Schedule for Time-of-Use (TOU)



Source: PG&E Electric Vehicle (EV) Rate Plans, 2019

# UTILITY COORDINATION PROCESS



# EVSE INSTALLATION SCENARIOS

## Upgrading Service and Additional Service Drop

For buildings without sufficient existing electrical capacity for their planned EV charging loads there are two main options to consider. First is an **electric service upgrade to the property**. This may be costly and trigger requirements to bring the property up to current building code. This option may make the most sense as part of a larger electrical or other property rehabilitation project. Replacing a building's main service entrance and panel requires coordination between the property owner, the Authority Having Jurisdiction (AHJ) for a permit, and the Utility Provider.

A second option may be to add a **second service drop to an existing site**. Although the electrical code generally favors a single electrical connection point, exceptions exist for several situations. New services could support EV charging without requiring modifications to existing building supply. A new service entrance could be located close to the parking area where the power is needed and allow all charging to be segregated to its own utility meter, offering the freedom to choose the most suitable tariff for EV charging.

The **PG&E EV Charge Network program** uses the second service model, with the added benefit of providing PG&E clear ownership of all the make-ready infrastructure connected to the new service. The EV Charge Network program is available at workplaces and multi-unit dwelling (MUD) apartment complexes.



## PROGRAM REQUIREMENTS

- My site is a multi-unit dwelling or workplace.
- I am able to reserve at least 10 contiguous parking spaces for EV charging.
- I know which ownership model I want (EV Charge Owner or EV Charge Sponsor) and am ready to sign the terms and conditions for that ownership model.
- I am willing to sign an easement allowing PG&E to maintain its infrastructure.
- I am willing to comply with ADA requirements.
- I understand that I will have both upfront and ongoing costs associated with the program, and have evaluated my budget.
- I understand that acceptance to the program is not automatic, and my site will be reviewed for eligibility and suitability in the coming weeks.
- I have a copy of a recent PG&E bill on hand.

*PG&E EV Charge Network Application: [https://www.pge.com/en\\_US/large-business/solar-and-vehicles/clean-vehicles/ev-charge-network/program-participants/pre-application.page](https://www.pge.com/en_US/large-business/solar-and-vehicles/clean-vehicles/ev-charge-network/program-participants/pre-application.page)*

# UTILITY COORDINATION CHECKLIST

## UTILITY COORDINATION CHECKLIST FOR ELECTRIC VEHICLE CHARGING STATION (EVCS)

Installations must be completed by a licensed electrical contractor (C-10). (Local Regulations, California Electrical Code CEC Article 625).

### Utility Coordination Steps

- Contract qualified electrician to conduct site assessment, including utility upgrades or separate meter service if applicable. Assess the site for:
  1. All electrical system elements (main service, sub-panels, disconnecting means, etc.)
  2. Current electrical code deficiencies
  3. Existing electrical load
  4. Proper safe mounting for the selected EVCS
  5. If applicable, new possible meter location
  
- If applicable, contact Utility Provider for service work order for utility upgrades/notification of new service.
  1. Follow Utility Provider-specific procedures and file subsequent forms
  2. Select the appropriate rate and meter system
  3. Complete Utility Provider-specific change of service forms, if applicable
    - a. Information on application may include:
      - i. Rate Option
      - ii. Charging Level
      - iii. Charging Load
      - iv. Panel Upgrade
  
- Ensure Utility Provider work order is approved. Any work on the utility side of the electric service requires a work order and disconnect/re-connect.
  
- Complete permit application from local jurisdiction and electrical load calculation. Prepare plans required by local jurisdiction. Construction plans indicate types of wiring and installation methods. Show compliance with requirements of Chapters 1-4 of the CEC, except as superseded by CEC Article 625.
  
- Following Utility Provider approval, permit is approved, and issued.
  
- Contact qualified electrician to conduct electrical work.

# RESOURCES

Utility	Resources
PG&E	<ul style="list-style-type: none"> <li>• Electric Vehicle Charging Installation: <a href="https://www.pge.com/en_US/residential/solar-and-vehicles/options/clean-vehicles/electric/charger-installation.page">https://www.pge.com/en_US/residential/solar-and-vehicles/options/clean-vehicles/electric/charger-installation.page</a></li> <li>• EV Charge Network: <a href="https://www.pge.com/en_US/large-business/solar-and-vehicles/clean-vehicles/ev-charge-network/program-participants/program-participants.page">https://www.pge.com/en_US/large-business/solar-and-vehicles/clean-vehicles/ev-charge-network/program-participants/program-participants.page</a></li> </ul>
KMPUD	<ul style="list-style-type: none"> <li>• Connections Fees and Services: <a href="https://www.kmpud.com/wp-content/uploads/Schedule-of-Fees-and-Services-July-1-2018.pdf">https://www.kmpud.com/wp-content/uploads/Schedule-of-Fees-and-Services-July-1-2018.pdf</a></li> <li>• Developer Packet and Service Request: <a href="https://www.kmpud.com/wp-content/uploads/Developer-Packet-July-2018-1.pdf">https://www.kmpud.com/wp-content/uploads/Developer-Packet-July-2018-1.pdf</a></li> </ul>
Liberty Utilities	<ul style="list-style-type: none"> <li>• Electric Vehicle Program: <a href="https://california.libertyutilities.com/portola/residential/evolve/electric-vehicle-program.html">https://california.libertyutilities.com/portola/residential/evolve/electric-vehicle-program.html</a></li> <li>• Time-of-Use Rates: <a href="https://california.libertyutilities.com/portola/residential/smart-energy-use/time-of-use-tou-rates.html">https://california.libertyutilities.com/portola/residential/smart-energy-use/time-of-use-tou-rates.html</a></li> </ul>
TPPA	<ul style="list-style-type: none"> <li>• Contact: Liz Peterson TPPA Coordinator <a href="mailto:epeterson@co.tuolumne.ca.us">epeterson@co.tuolumne.ca.us</a></li> </ul>
CPPA	<ul style="list-style-type: none"> <li>• Contact: Dennis Dickman General Manager <a href="mailto:dda@volcano.net">dda@volcano.net</a></li> </ul>



